

ENVIRONMENTAL ASSESSMENT  
Fisheries Division  
Montana Fish, Wildlife and Parks  
Big Hole River Diversion Repair Project

General Purpose: The 1995 Montana Legislature enacted statute 87-1-272 through 273 that directs the Department to administer a Future Fisheries Improvement Program. The program involves providing funding for physical projects to restore degraded fish habitat in rivers and lakes for the purpose of improving wild fisheries. The legislature established an earmarked funding account to help accomplish this goal.

The Future Fisheries Improvement Program is proposing to provide partial funding to a project calling for repairing an existing series of rock step-weirs associated with an irrigation diversion owned by the Big Hole Cooperative Ditch Company. These rock weirs, each set progressively at lower elevations, were constructed in 2010 to improve irrigation infrastructure on the Big Hole Cooperative Diversion, as well as to enhance upstream fish passage and make the diversion structure more boater friendly. The 2011 spring run-off event eroded the west side of the river bank, breaching four of the newly installed weirs. This project calls for repairing each of the damaged weirs by adding additional rock onto the structures and keying them about 20 feet into the existing river bank. The intent of this project is to stabilize the existing weirs, improve boater passage over the diversion and maintain upstream fish passage. This proposed project is located on the Big Hole River about 5 miles southwest of the community of Twin Bridges in Madison County.

I. Location of Project: This project will be conducted on the Big Hole River located within Township 4 South, Range 7 West, Section 11 in Madison County (Attachment 1).

II. Need for the Project: One goal within Montana Fish, Wildlife and Parks six-year operations plan for the fisheries program is to “restore and enhance degraded fisheries habitats” by implementing habitat restoration projects and administering the Future Fisheries Improvement Program to restore important habitats on private and public lands. This proposed project would help meet this goal.

The lower Big Hole River supports a very popular recreational fishery for rainbow trout and brown trout. Prior to 2010, the Big Hole Cooperative diversion structure was composed of a single rock weir consisting of about a 4-foot elevation drop, which created a partial fish passage barrier and made boat passage very difficult. The diversion was re-configured in 2010 by installing a series of four, low-head, rock weirs, each set progressively at lower elevations, to ensure water users could continue to obtain their irrigation water and, at the same time, improve upstream fish passage and make the diversion more boater-friendly. High spring runoff in 2011 resulted in erosion around the west end of the four newly installed rock weirs, creating a higher velocity channel. This higher energy channel increases the likelihood of additional erosion in the future, threatens continued upstream fish passage and makes it more difficult for boaters to pass over the structure (Attachment 2). This project calls for repairing the damaged weirs by installing additional rock on the west end of each structure and keying the structures about 20 feet into the existing bank.

III. Scope of the Project:

Four of the existing rock weirs on the diversion would be repaired by placing additional rock on the west end of each structure (Attachment 3). Approximately 250 yards of rock would be used to repair the diversion. Construction access is readily available from the west bank of the river, allowing most of the work to be accomplished without equipment entering the active channel. Approximately 15 to 20 of river bank adjacent to each weir structure would be rip-rapped with rock to provide for additional erosion protection. This project is expected to cost \$15,000.00. Of this total, the Future Fisheries Improvement Program would be contributing up to \$12,500.00. The remainder of the funding would come from the landowner (\$2,500.00).

IV. Environmental Impact Checklist:

Please see attached checklist.

V. Explanation of Impacts to the Physical Environment

1. Terrestrial and aquatic life and habitats.

Repairing the existing diversion may harm aquatic life in the immediate vicinity of the construction site in the short term, but would help maintain fish passage over the diversion over the long term by preventing future failure of the structure. Rainbow trout, brown trout and mountain whitefish likely would benefit from the project over the long term.

2. Water quantity, quality and distribution.

Short-term increases in turbidity will occur during project construction. To minimize turbidity, the operation of equipment in the active river channel will be minimized to the extent practicable. The Department of Environmental Quality will be contacted to determine narrative conditions required to meet short-term water quality standards and protect aquatic biota (318 authorization). A 310 permit (Montana Natural Streambed and Land Preservation Act) will be obtained from the local conservation district, and the U.S. Army Corp of Engineers will be contacted to determine the need to meet 404 provisions of the Clean Water Act. Completion of the project would help ensure water users on the Big Hole Cooperative Diversion continue to be able to obtain their irrigation water.

3. Geology and soil quality, stability and moisture.

Soils along the stream margin would be temporarily disturbed during construction. All disturbed areas would be re-vegetated with a native grass seed mix.

4. Vegetation cover, quantity and quality.

Vegetation and cover would be disturbed during the period of construction. Existing stream banks currently are vegetated with pasture grass. Proposed re-seeding efforts would mitigate this disturbance.

5. Aesthetics.

In the short term, aesthetics in the immediate project area would be adversely impacted due to ground disturbance and the presence of heavy construction equipment. The project is expected to take less than one week to complete.

9. Historic and archaeological sites.

The project would require excavation into the west river bank to key each of the four rock weirs into place. This excavation has the potential to disturb cultural artifacts, if present. Additionally, the proposed project may require an Army Corp of Engineers 404 permit, where the permittee could not proceed until a “no effect” determination from the Corp or other authorization under the National Preservation Act is received. Therefore, the State Historic Preservation Office will be contacted to determine the need for compliance with the federal historic preservation regulation. Future Fisheries funding would not be made available until a cultural clearance is granted.

VI. Explanation of Impacts on the Human Environment.

7. Access to & quality of recreational and wilderness activities.

Completion of the project would restore the improvements to recreational boat passage provided by the original 2010 project.

VII. Discussion and Evaluation of Reasonable Alternatives.

1. No Action Alternative

If no Future Fisheries funding is provided, the applicant would have to either seek other sources of funding to complete the project or the Big Hole Cooperative Diversion would continue to be threatened by additional river bank erosion and boater passage would continue to be hindered.

2. The Proposed Alternative

The proposed alternative is designed to repair the existing irrigation diversion to ensure water users are able to continue to obtain their irrigation water and, at the same time, maintain upstream fish passage and improve boater passage over the structure.

VIII. Environmental Assessment Conclusion Section

1. Is an EIS required? No.

We conclude from this review that the proposed activities will have a positive impact on the physical and human environment.

2. Level of public involvement.

The proposed project was reviewed and supported by the public review panel of the Future Fisheries Improvement Program. The Fish, Wildlife and Parks Commission also will review

the proposed project and funding will be contingent upon their approval. The Environmental Assessment (EA) is being distributed to all individuals and groups listed on the cover letter. The EA also will be published on Montana Fish, Wildlife and Parks webpage: [fwp.mt.gov](http://fwp.mt.gov).

3. Duration of comment period?

Public comment will be accepted through 5:00 PM on August 12, 2013

4. Person responsible for preparing the EA.

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**ENVIRONMENTAL ASSESSMENT**

Project Title Big Hole River Diversion Repair Project

Division/Bureau Fisheries Division -Future Fisheries Improvement

Description of Project The Future Fisheries Improvement Program is proposing to provide partial funding to a project calling for the repair of an existing series of rock weirs associated with the Big Hole River Cooperative Diversion. The intent of the project is to maintain upstream fish passage for rainbow trout, brown trout and mountain whitefish and improve boater passage over the diversion structure. The project site is located about 5 miles southwest of the town of Twin Bridges in Madison County.

POTENTIAL IMPACT ON PHYSICAL ENVIRONMENT

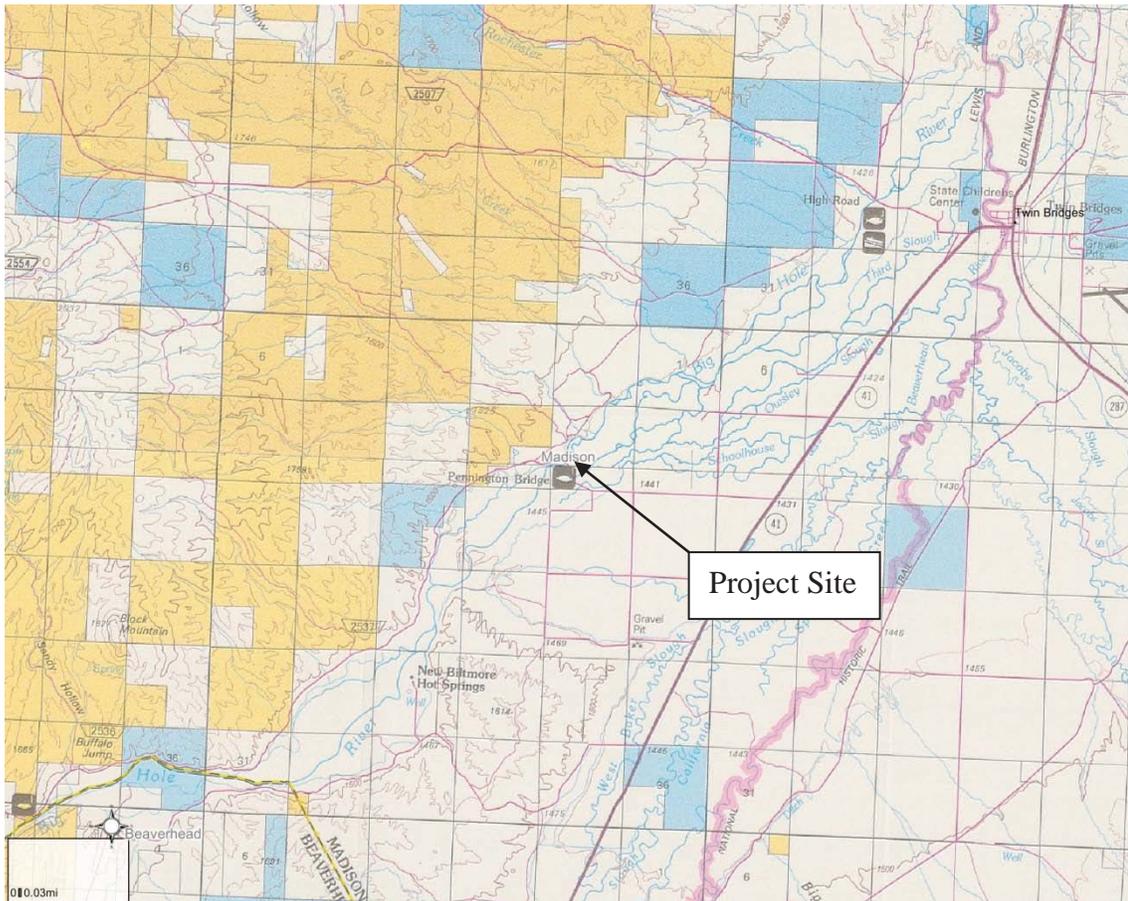
|  | MAJOR | MODERATE | MINOR | NONE | UNKNOWN | COMMENTS ON ATTACHED PAGES |
|--|-------|----------|-------|------|---------|----------------------------|
| 1. Terrestrial & aquatic life and habitats                         |       |          | X     |      |         | X                          |
| 2. Water quality, quantity & distribution                          |       |          | X     |      |         | X                          |
| 3. Geology & soil quality, stability & moisture                    |       |          | X     |      |         | X                          |
| 4. Vegetation cover, quantity & quality                            |       |          | X     |      |         | X                          |
| 5. Aesthetics  |       |          | X     |      |         | X                          |
| 6. Air quality   |       |          |       | X    |         |                            |
| 7. Unique, endangered, fragile, or limited environmental resources |       |          |       | X    |         |                            |
| 8. Demands on environmental resources of land, water, air & energy |       |          |       | X    |         |                            |
| 9. Historical & archaeological sites                               |       |          |       |      | X       | X                          |

POTENTIAL IMPACTS ON THE HUMAN ENVIRONMENT

|  | MAJOR | MODERATE | MINOR | NONE | UNKNOWN | COMMENTS ON ATTACHED PAGES |
|--|-------|----------|-------|------|---------|----------------------------|
| 1. Social structures & mores                                     |       |          |       | X    |         |                            |
| 2. Cultural uniqueness & diversity                               |       |          |       | X    |         |                            |
| 3. Local & state tax base & tax revenue                          |       |          |       | X    |         |                            |
| 4. Agricultural or industrial production                         |       |          |       | X    |         |                            |
| 5. Human health  |       |          |       | X    |         |                            |
| 6. Quantity & distribution of community & personal income        |       |          |       | X    |         |                            |
| 7. Access to & quality of recreational and wilderness activities |       |          | X     |      |         | X                          |
| 8. Quantity & distribution of employment                         |       |          |       | X    |         |                            |
| 9. Distribution & density of population & housing                |       |          |       | X    |         |                            |
| 10. Demands for government services                              |       |          |       | X    |         |                            |
| 11. Industrial & commercial activity                             |       |          |       | X    |         |                            |
| 12. Demands for energy   |       |          |       | X    |         |                            |
| 13. Locally adopted environmental plans & goals                  |       |          |       | X    |         |                            |
| 14. Transportation networks & traffic flows                      |       |          |       | X    |         |                            |

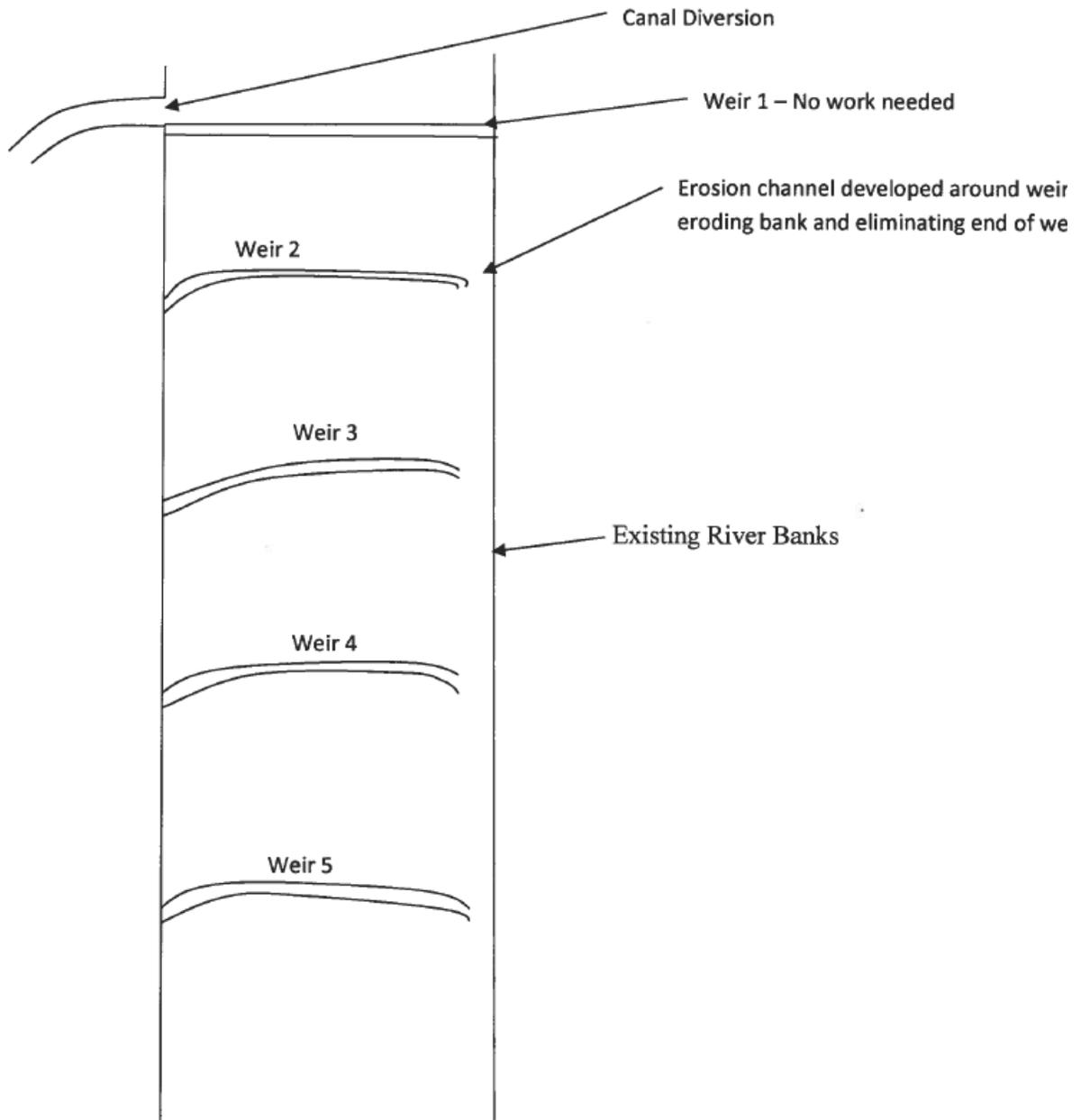
Other groups or agencies contacted or which may have overlapping jurisdiction Ruby Valley Conservation District, US Fish and Wildlife Service, US Army Corp of Engineers, Montana Department of

Environmental Quality, State Historic Preservation Office  
Individuals or groups contributing to this EA Lewis Burton P.E.  
Recommendation concerning preparation of EIS No EIS required.  
EA prepared by: Mark Lere  
Date: June 24, 2013



Map showing project location on the Big Hole River.

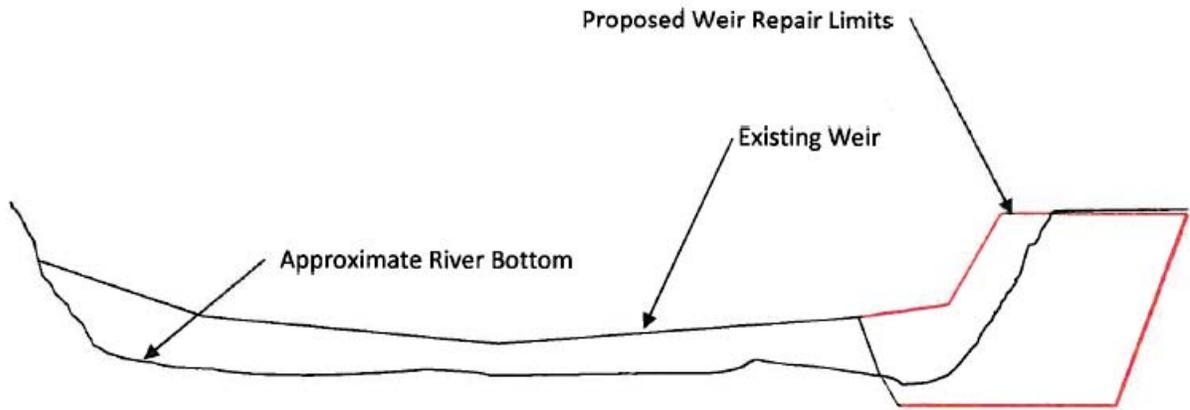
ATTACHMENT 1



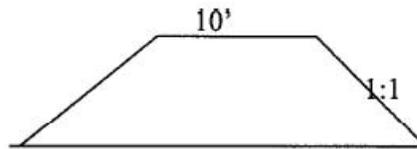
**Plan of Existing Project Area**

Existing Conditions on Big Hole Cooperative Diversion.

ATTACHMENT 2



**Typical Profile Along Centerline of Weir**



**Typical Cross Section of Proposed Weir Repair**

**Details of Weir Repair Recommendations**

Proposed Repair for Big Hole Cooperative Diversion

ATTACHMENT 3